

WHAT IS CLAIMED IS:

1. A method for measuring birefringence in an optical material, said method comprising the steps of:

5 setting a birefringence sensor to an optical state and moving said birefringence sensor in a predetermined direction at a substantially constant velocity over said optical material while making a power transmission measurement at each of a plurality of distinct locations on
10 said optical material;

 repeating the setting step a predetermined number of times where each time said birefringence sensor is set to one of a predetermined number of optical states and moved in the predetermined direction at the substantially
15 constant velocity over said optical material while making a power transmission measurement at each of the plurality of distinct locations on said optical material; and

 calculating a birefringence value for each distinct location on said optical material using a combination of
20 the power transmission measurements measured at each distinct location on said optical material.

2. The method of Claim 1, further comprising the step of analyzing said birefringence values to determine
25 the quality of said optical material.

3. The method of Claim 1, wherein said optical material is a glass sheet.

4. The method of Claim 1, wherein said birefringence sensor is a liquid crystal variable retarder birefringence sensor.

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5. A system comprising:

a computer;

a birefringence sensor;

a device for moving said birefringence sensor over
10 said optical material; and

said birefringence sensor is set to a first optical state and then moved by said device in a predetermined direction at a substantially constant velocity from a starting point to an end point over said optical material
15 while said birefringence sensor makes a first power transmission measurement at each of a plurality of distinct locations on said optical material which are sent to said computer then said birefringence sensor is set to a second optical state and moved by said device in a predetermined
20 direction at the substantially constant velocity from the end point to the starting point over said optical material while said birefringence sensor makes a second power transmission measurement at each of the plurality of distinct locations on said optical material which are sent
25 to said computer and this process is repeated a number of times depending on a number of optical states associated with said birefringence sensor then once the process is complete said computer calculates birefringence values for

each distinct location on said optical material using a combination of the power transmission measurements measured at each distinct location on said optical material.

5 6. The system of Claim 5, wherein said computer analyzes said birefringence values to determine the quality of said optical material.

 7. The system of Claim 5, wherein said optical
10 material is a glass sheet.

 8. The system of Claim 5, wherein said birefringence sensor is a liquid crystal variable retarder birefringence sensor.

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 9. The system of Claim 5, wherein said device is a stepper motor drive system.

 10. The system of Claim 5, wherein said device is a
20 dc motor and ball screw drive.

 11. A method for measuring birefringence in an optical material, said method comprising the steps of:

 setting a birefringence sensor to a first state and
25 moving said birefringence sensor in a predetermined direction at a substantially constant velocity from a starting point to an end point over said optical material

while making a first power transmission measurement at a plurality of distinct locations on said optical material;

5 setting a birefringence sensor to a second state and moving said birefringence sensor in a predetermined direction at the substantially constant velocity from the end point to the starting point over said optical material while making a second power transmission measurement at the plurality of distinct locations on said optical material;

10 setting a birefringence sensor to a third state and moving said birefringence sensor in the predetermined direction at the substantially constant velocity from the starting point to the end point over said optical material while making a third power transmission measurement at a plurality of distinct locations on said optical material;

15 setting a birefringence sensor to a fourth state and moving said birefringence sensor in the predetermined direction at the substantially constant velocity from the end point to the starting point over said optical material while making a fourth power transmission measurement at the plurality of distinct locations on said optical material;
20 and

 calculating a birefringence value at each distinct location on said optical material using the first, second, third and fourth power transmission measurements measured
25 at each distinct location on said optical material.

12. The method of Claim 11, further comprising the step of analyzing said birefringence values to determine the quality of said optical material.

5 13. The method of Claim 11, wherein said optical material is a glass sheet.

14. The method of Claim 11, wherein said birefringence sensor is a liquid crystal variable retarder
10 birefringence sensor.

15. A system for measuring birefringence in an optical material, said system comprising:

a computer;

15 a birefringence sensor;

a device for moving said birefringence sensor over said optical material;

said birefringence sensor is set to a first optical state and moved by said device in a predetermined direction
20 at a substantially constant velocity from a starting point to an end point over said optical material while said computer obtains from said birefringence sensor a first power transmission measurement at each of a plurality of distinct locations on said optical material;

25 said birefringence sensor is set to a second optical state and moved by said device in a predetermined direction at the substantially constant velocity from the end point to the starting point over said optical material while said

computer obtains from said birefringence sensor a second power transmission measurement at each of the plurality of distinct locations on said optical material;

5 said birefringence sensor is set to a third optical state and moved by said device in the predetermined direction at the substantially constant velocity from the starting point to the end point over said optical material while said computer obtains from said birefringence sensor a third power transmission measurement at each of the
10 plurality of distinct locations on said optical material;

 said birefringence sensor is set to a fourth optical state and moved by said device in the predetermined direction at the substantially constant velocity from the end point to the starting point over said optical material
15 while said computer obtains from said birefringence sensor a fourth power transmission measurement at each of the plurality of distinct locations on said optical material;
and

 said computer calculates birefringence values at each
20 distinct location on said optical material using a combination of the first, second, third and fourth power transmission measurements measured at each distinct location on said optical material.

25 16. The system of Claim 15, wherein said computer analyzes said birefringence values to determine the quality of said optical material.

17. The system of Claim 15, wherein said optical material is a glass sheet.

18. The system of Claim 15, wherein said
5 birefringence sensor is a liquid crystal variable retarder
birefringence sensor.

19. The system of Claim 15, wherein said device is a
stepper motor drive system.

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20. The system of Claim 15, wherein said device is a
dc motor and ball screw drive.